DOCUMENT RESUME

ED 265 341 CE 043 278

TITLE Inspection. Youth Training Scheme. Core Exemplar Work Based Project.
INSTITUTION Further Education Staff Coll., Blagdon (England).
REPORT NO ISBN-0-948361-46-8
PUB DATE 84
NOTE 20p.; Portions printed on colored paper. For other guides in this series, see CE 043 245-288.
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052) -- Guides - Classroom Use - Materials (For Learner) (051)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Behavioral Objectives; *Career Education; Competency Based Education; Core Curriculum; Foreign Countries; *Inspection; Job Skills; Learning Activities; Learning Modules; *Manufacturing; On the Job Training; Postsecondary Education; *Quality Control; Records (Forms); *Work Experience Programs
IDENTIFIERS England

ABSTRACT

This trainer's guide is intended to assist supervisors of work-based career training projects in helping students learn all aspects of the inspection process in manufacturing. The guide is one in a series of core curriculum modules that is intended for use in combination on- and off-the-job programs to familiarize youth with the skills, knowledge, and attitudes necessary for success in the workplace. Included in the guide are the following components: project information, a summary of the content and approach of the guide, supervisor's notes, background information, lists of tasks and core skills, an action plan that includes suggested learning activities, supervisor and trainee review sheets, and an assessment form. (YLB)

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Youth Training Scheme

CORE EXEMPLAR WORK BASED PROJECT

ED265341

Inspection

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CE043278

ESF
CORE SKILLS PROJECT
YTS

OTF No: 6

PROJECT No: S|47

TYPE Individual

The Further Education Staff College
Coombe Lodge, Blagdon, Bristol, BS18 6RG ✆ 0761-62503

ISBN 0-948361-46-8

ASSESSMENT OF CORE SKILLS

This series of projects contains a number of different formats for recording assessment of core skills. These formats are offered for experimental purposes; none is proven as the 'best' method. All are based on the principle that feedback to trainees is a necessary part of the learning process and that such feedback should include information on core skill development.

Further work is being carried out on the methods of assessing achievement of core skills in work-based learning and of how to log such achievement on a record which trainees can take away from YTS. Some of the results of this work will be included in later MSC/ESF Core Skills Project publications.

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INTRODUCTION

WHAT ARE WORK-BASED PROJECTS?

Work-based projects are learning materials which aim to make the most of all the possibilities for developing trainees' skills, knowledge and attitudes in the workplace. They build upon everyday workplace tasks to provide experience of the whole range of YTS learning opportunities.

The projects in this series have been tested with managing agents as part of the YTS Core Project, which is jointly financed by MSC and the European Social Fund. In some cases managing agents will be able to use the projects as they are. In others they will need to be adapted to the circumstances of a particular workplace or to the aims of a particular scheme. Some managing agents will prefer to produce their own projects. For such cases these examples aim to demonstrate some principles of good design in work-based learning materials. These principles are:

To encourage trainees to learn by doing
To make the most of all the experiences which are available to trainees in the workplaces.
To start from a real task which is seen as relevant by all parties involved — trainees, workplace supervisors, trainers and off-the-job tutors.
To help trainees see the relationships between things learnt on- and off-the-job.
To base the assessment of achievement upon trainees' actual performance in tasks.
To look for all the opportunities for learning which arise from a task and, in particular, to help trainees to develop the core skills. These skills, in number, communication, problem-solving and practical activities, are used in a wide variety of tasks and are essential if trainees are to achieve competence in those tasks*. They are the skills — of finding out information, planning how to do things, overcoming difficulties and so on —*which help trainees to learn more quickly in new situations, either in the same workplace, in a different one, or in the world outside work.

Such skills are required naturally by the workplace tasks in these projects and, in requiring trainees to go beyond the task itself, the projects deliberately *add* to the range of core skills which are required in an everyday working situation. This is especially important for some of the skills of communication and problem-solving which trainees are often not given the opportunity to exercise in work experience.

These principles can be incorporated in projects for all placements and for trainees of all ability levels. Although the projects in this series follow a common format, there is no single 'best' style. Nor is any special expertise in writing necessary. Good work-based projects can be produced by anyone who is determined to help trainees to exploit all of the potential for learning in work experience.

*A technical manual 'Core Skills in YTS' is currently available from MSC. It is supported by a short introductory leaflet and a practitioner's guide for supervisors. A separate manual is available on computer literacy/information technology

PROJECT INFORMATION

SUBJECT CHOICE: INSPECTION

This subject was chosen because it is relevant to all production line situations. In any workplace where there is a manufacturing or assembly line, inspection of the items produced is a vital part of the process. It was originally used on an electronics assembly line.

WHERE IT CAN BE USED/COULD BE USED:

The Project should be able to be used in any workplace where items which are produced are inspected for quality. However, not all workplaces will carry out total, random and batch inspection. The Project will have limited use if only inspection method is used.

STAGE(S) IN TRAINING PROGRAMME THE PROJECT WAS/COULD BE USED:

This Project could take some time to complete, and would have more relevance if it was carried out once a trainee was familiar with the production/assembly line process. It is not suitable for Induction, and would best be done after a trainee has spent some time in a production area.

LINK UP WITH OTHER WORK-BASED PROJECTS:

The Project links with the 3 Production Line Projects - "Materials", "Labour" and "Tools and Equipment". Ideally, it follows from these 3. A trainee who does all 4 of these Projects should become well aware of all aspects of the manufacturing/assembly process in his/her workplace.

SPECIAL CIRCUMSTANCES:

Some inspection equipment may be highly specialised and complex to operate. In these cases trainees may need help from inspection/test experts in carrying out checks.

ADAPTATIONS/MODIFICATIONS:

If all the different types of inspection mentioned in the Project are not carried out in a particular workplace, the Project could easily be modified to cover just those types of inspection that are used. Pages 5, 6 or 7 of the Action Plan could be individually replaced or removed.

USE OF OFF-THE-JOB TUTOR:

The calculation of % inspection passes and rejections and the construction and comparison of graphs could take the trainee some time to do and are parts of the Action Plan where an Off-the-job tutor could be particularly helpful.

SUMMARY

This Project asks the trainee to:

experience different methods of inspection by;

interpreting drawings, diagrams and then carrying out physical checks on materials or products

using inspection instruments safely and accurately

recording information and comparing results

observing and questioning people in the workplace.

SUPERVISOR'S NOTES

The Action Plan is intended to allow the trainee to experience different methods of inspection and record accurately his/her findings. Done properly, it should be very time-consuming and involve calculations to enable graphs and bar charts to be drawn.

In order to carry out the physical inspection of materials or products the trainee may require training in the use of inspection instruments before beginning each section.

Also access to drawings, specifications etc. will have to be arranged.

Please ensure that the trainee is allowed to perform ALL three types of inspection.

Please discuss the page "COMPARING YOUR RESULTS" with the trainee after he/she has completed the Project.

NAMES

Trainee _____

Supervisor _____

TIMES

Fill in the table below. This will show the time you spend on this Project. The first column has been filled in as an example. Make another table if you need more space.

Date	8/3/84					
Start	9·30					
Finish	12·30					TOTAL
Time Spent	3 hours					

BACKGROUND

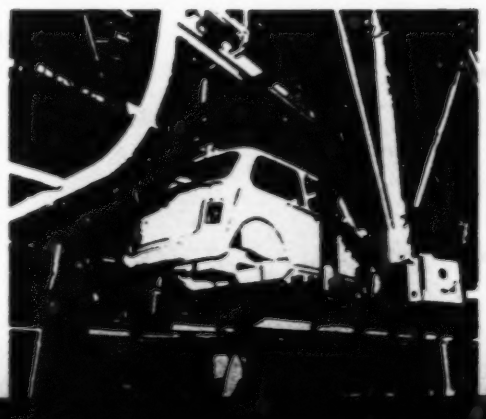
A manufactured article such as a car, must be of high quality and be reliable. It must not break down. To make "good" products which are reliable, checks and tests must be done when the article is being made.

If faults are found they must be put right.

INSPECTION is the name given to the process of checking and testing.

SITUATION

Any work area where inspection is carried out.



PURPOSES

Doing this Project will help you to learn more about your work. It will also help you to develop your Core Skills (Number, Communication, Problem Solving, Practical and Computer Literacy Skills). Increasing your competence in these skills will make it easier to learn new work skills, change jobs, and retrain when the need arises.

The activities that you will be asked to carry out are listed below, along with the main Core Skills that they contain. These Core Skills are also listed on the "Project Record " Form at the end of the Action Plan and your Supervisor should assess your achievements in these skills as you complete the Project. This record will be needed to complete your Certificate at the end of your YTS Year.

To help you to:	Core Skills:
interpret diagrams or drawings used in an inspection process	2.2 interpret diagrams and pictorial representations
interpret test equipment readout when carrying out inspection	2.3 interpret scales, dials and digital readouts
find out about the methods of inspection used in your workplace	6.1 find out information by speaking to other people 6.3 find out information by observing
check the quality of materials/ products by following inspection procedures	11.4 check the quality and condition of equipment, materials or products
make sure that you will work in safe conditions	12.5 arrange for safe and easy working with equipment
operate the equipment used to carry out inspection in your workplace	13.4 operate and control or adjust tools, equipment, machinery or instruments
record your inspection findings in the tables provided and as bar charts	7.3 provide information in writing and by means of tables and diagrams
compare bar charts for the 3 different inspection methods studied	1.4 compare numerical information from different sources

Please read the questions asked in the Trainee Review Section.

ACTION PLAN

Read through this Action Plan carefully before you start.

PREPARATION

Find out from your Supervisor:

- the areas you are to work in
- safety requirements to be met for these areas
- what documents are normally used to record information in these work areas
- how to use the inspection/test equipment in use
- where drawings, diagrams or information or specifications are kept. (If you don't know what specifications are.... find out.)

OBSERVATION

Watch a company inspection employee at work and make a note answering these questions:

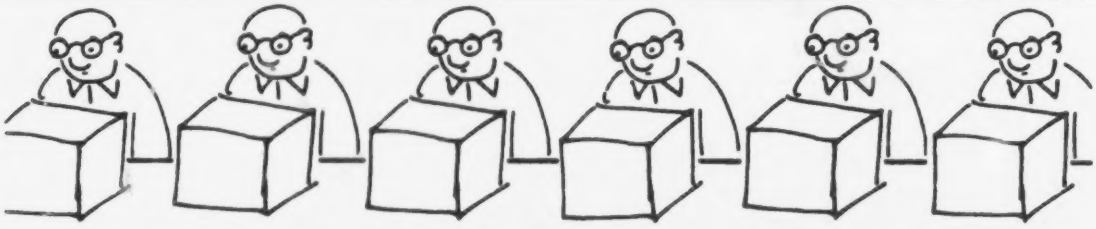
Does he/she use a drawing or diagram or any other document to help them? If so, what?

Do they use test equipment e.g. gauges, micrometers, ohmmeter etc.? If so, what?

Do they record information on any document? If so, which document?

Do they test ALL or only SAMPLES of the work pieces?

TOTAL INSPECTION



Find out from your Supervisor what items must be 100% inspected.
e.g. container holding 100 items all of which must be checked.

Collect the different documents, drawings etc. you will need to inspect the items and record your findings. Ask your Supervisor to help if you are unsure where or what to look for.

Find, and collect the equipment you will need to inspect them.

Check the items and record this information below:

ITEMS INSPECTED	
ITEMS REJECTED	
ITEMS PASSED	
PERCENTAGE REJECTED	
PERCENTAGE PASSED	

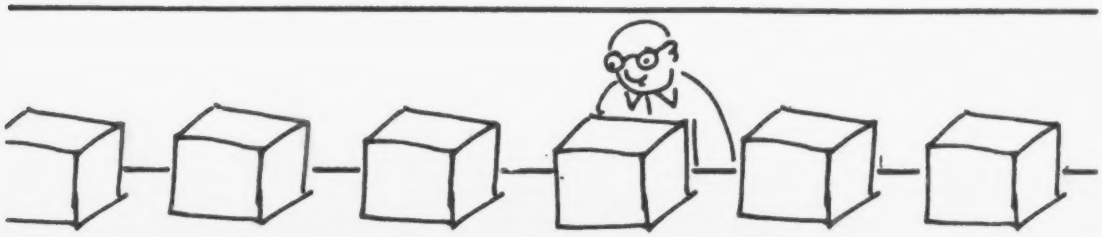
Draw a graph or bar chart to show:

- Number of items inspected
- Number of items rejected
- Number of items passed inspection

Ask your Supervisor or tutor if you are unsure what a graph or bar chart should look like.

Find out what happens to the items which are rejected.

SAMPLED RANDOMLY



Find out from your Supervisor what items must be sampled randomly. e.g. items which are checked at a varying rate or varying intervals.

Collect the different documents, drawings etc. you will need to inspect the items and record your findings. Ask your Supervisor to help if you are unsure where or what to look for.

Find, and collect the equipment you will need to inspect them.

Check the items and record this information below:

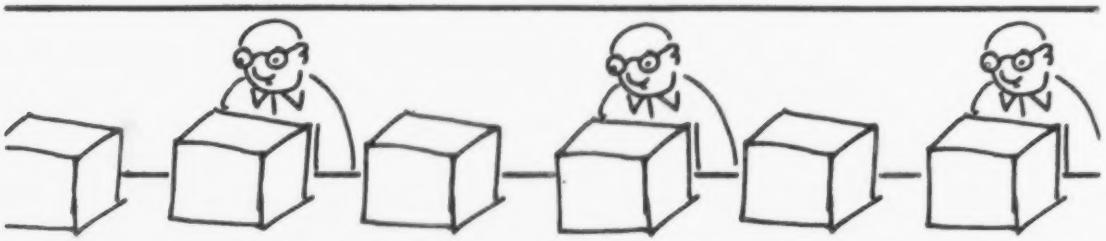
ITEMS INSPECTED	
ITEMS REJECTED	
ITEMS PASSED	
PERCENTAGE REJECTED	
PERCENTAGE PASSED	

Draw a graph or bar chart to show:

- Number of items inspected
- Number of items rejected
- Number of items passed inspection

Find out what happens to the items which are rejected.

BATCH INSPECTION



Find out from your Supervisor what items must be batch inspected.
e.g. containers holding 100 items of which perhaps only 10 are checked.

Collect the different documents, drawings etc. you will need to inspect the items and record your findings. Ask your Supervisor to help if you are unsure where or what to look for.

Find, and collect the equipment you will need to inspect them.

Check the items and record this information below:

ITEMS INSPECTED	
ITEMS REJECTED	
ITEMS PASSED	
PERCENTAGE REJECTED	
PERCENTAGE PASSED	

Draw a graph or bar chart to show:

- Number of items inspected
- Number of items rejected
- Number of items passed inspection

Find out what happens to the items which are rejected.

COMPARING YOUR RESULTS 8

Compare the graphs or bar charts that you have drawn for the 3 different inspection methods.

What differences are there between the 3 charts?

Discuss with your Supervisor the reasons for the differences.

Why should some items need 100% inspection whilst others are only randomly or batch tested?

Are there any items which must be 100% tested for legal reasons?

BEFORE YOU START

How long do you think it will take to carry out this Action Plan?

WHEN YOU HAVE FINISHED

How long did it take to carry out the Action Plan?

Was this more/less than you estimated?

Why?

TRAINEE REVIEW

These questions may help you to decide what to write.

What did you learn? Remember the PURPOSES or things that you could learn are listed on page 3.

Were any parts of the Action Plan too difficult? Which ones? What did you do?

Were any parts too easy? Which ones?

What was the most interesting part of the Action Plan and why?

How could you follow up this Project? Does it connect with other Projects that you have done?

How could you use what you have learned in this Project in the future?

SUPERVISOR REVIEW

10

Please refer to Supervisor's Notes.

Please read the questions included under Trainee Review.

Please complete the Project Record Form and discuss your assessment with the trainee before initialling it to show that you both agree with the assessment.

COMMENTS:

PROJECT RECORD FORM

PROJECT TITLE INSPECTION WBP NO S/8 DATE

TRAINEE'S NAME SUPERVISOR'S NAME

WORK BASED PROJECT		NEEDED A LOT OF ASSISTANCE	NEEDED SOME ASSISTANCE	LITTLE OR NO ASSISTANCE		FURTHER TRAINING NEEDED	COMMENTS: INCLUDING NO OPPORTUNITY	AGREED INITIALS	
TASK NO	CORE SKILLS ASSESSED			NEEDS MORE PRACTICE	COMPETENT			TRAINEE	SUPERVISOR
	interpreting diagrams containing information necessary for inspection 2.2								
	interpreting scales, dials and digital readouts when using inspection instruments 2.3								
	finding out information by observing people carrying out inspection tasks 6.3								
	finding out information by speaking to your Supervisor 6.1								
	checking the quality of materials or products when carrying out inspection tasks 11.4								
	arranging for safe and easy working 12.5								
	operating and controlling instruments involved in inspection 13.4								
	providing information on inspection methods by means of tables and diagrams 7.3								
	comparing the numerical information gathered from studying the different types of inspection 1.4								